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09/748,609	12/26/2000	Gerald R. Stanley	CRI0033.1	4249

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EXAMINER
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CUNNINGHAM, TERRY D

ART UNIT	PAPER NUMBER
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2816

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Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/748,609  
Filing Date: December 26, 2000  
Appellant(s): STANLEY, GERALD R.

**MAILED**  
AUG 06 2004  
**GROUP 2800**

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Sanders Hillis  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 20 October 2003.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is incorrect. Reference is made to the Miscellaneous Action mailed 01 July 2004 and the Interview Summary mailed 08 July 2004. A correct statement of the status of the claims is as follows:

This appeal involves claims 1, 2, 4, 5, 13-18, 20 and 21.

Claims 3, 6, 9-12 and 19 are allowed.

Claims 7 and 8 have been canceled.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect. The amendment filed 19 February 2003 is no longer deemed an After-Final Amendment. Said Amendment was entered upon reopening of prosecution for the Non-Final Office Action mailed 17 July 2003.

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) Issues**

The appellant's statement of the issues in the brief is substantially correct. Reference is made to the Miscellaneous Action mailed 01 July 2004 and the Interview Summary mailed 08 July 2004. The remaining issues is as follows:

Whether or not claims 1, 2, 4, 5, 13-18, 20 and 21 are unpatentable under 35 U.S.C. § 103 by of Cavigelli in view of Applicant's prior art Fig. 1.

**(7) Grouping of Claims**

Appellant's brief includes a statement that claims 1, 2, 4, 5, 13-18, 20 and 21 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

**(8) Claims Appealed**

The copy of the appealed claims contained in the Appendix to the brief is correct.

It is noted that while claims 3 and 19 are not included in this Appeal, the copy thereof is incorrect. Claims 3 and 19 are in independent form in accordance with the amendment filed 24 February 2003.

**(9) Prior Art of Record**

5,635,871	Cavigelli	06-1997
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Applicant's Prior Art Fig. 1.

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, 2, 4, 5, 13-18, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cavigelli (USPN 5,635,871). Cavigelli discloses, in Figs. 1 and 12a, a circuit comprising: “a low-pass filter circuit (all of Fig. 1 and 12a)”; a “band-reject filter (202 of Fig. 12a)”; “a first resistor (38)”; and “a second resistor (connecting line between 16 and 202), the “band-reject filter electrically connected between the first and second resistors”. However, Cavigelli does not expressly disclose any specific details for “band-reject filter” 202. Applicant’s prior art Fig. 1 discloses an “isolated-integrator band-reject filter” having the advantage of low cost and unwanted noise suppression. It would have been obvious for one skilled in the art to use the specific “isolated-integrator band-reject filter” in Applicant’s prior art Fig. 1 for the broad “band-reject filter” 202 of Cavigelli for the expected advantage of low cost and unwanted noise suppression.

**(11) Response to Argument**

It is pointed out that this Answer is responsive to the Appeal Brief filed 16 June 2003 and the Supplemental Appeal Brief filed 20 October 2003, responsive to the Non-Final Action dated 17 July 2003. Since the remaining issue was set forth in the Non-Final Action of 17 July 2003,

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the only Arguments of relevance are the arguments provided in the Supplemental Brief responsive to the rejection under 35 U.S.C. § 103.

Examiner additionally points out that the Declaration filed 24 February 2003 by James Wordinger and the remarks in view thereof have not been addressed herein. This Declaration does not discuss the remaining Issue and thus is not seen to be of relevance in this Appeal.

### **Group I**

On pages 9 and 10 of the Brief, Appellant provides general discussion for Claims 1 and 13 and for the reference to Cavigelli.

In the second full paragraph of page 10, Appellant begins discussion of the primary reference in an attempt to show that the reference to Cavigelli teaches away from using Applicant's prior art Fig. 1 filter. Appellant then makes the statement "As illustrated in Fig. 1 of Cavigelli each of the three amplifiers is an active stage that includes a low impedance output providing a voltage source to drive the subsequent stage". While Examiner may agree with the stages may be considered "active", in that they include an active element (the amplifier), Examiner finds no support in the reference to Cavigelli for these stages having "low impedance". Contrarily, the box labelled 27, although labelled as part of 19, is in fact a separate purely passive stage. Additionally, the mere fact that these elements are amplifiers does not necessitate that they are in fact "low impedance". In fact, there are many high impedance amplifiers known in the art. Without a teaching found in the reference to Cavigelli or without some additional evidence, stating that these stages are "low impedance" can only be seen to be conjecture.

In the paragraph linking pages 10 and 11, Appellant points to the requirement in the reference to Cavigelli that the "notch filter 202 does not affect the forward gain and the phase of

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the apparatus except in the notch region”. Appellant then makes the unsupported accusation that the “notch filter taught by Cavigelli must provide a buffered output having low output impedance (as is the case for each of the cascaded amplifiers taught by Cavigelli). Firstly, Examiner contends (as discussed above), that Appellant has failed to establish that the “cascaded amplifiers” necessarily have “low output impedance”. Further, if what Appellant states were true, then element 27 (discussed above) would totally destroy the forward gain of the circuit. Secondly, nowhere is the reference to Cavigelli seen to necessitate that the “notch filter” must have a buffered output and low output impedance. On the contrary, Examiner contends that there are many ways known in the art to avoid affecting the “forward gain”. One way is wherein the previous stage (i.e., 19) has a low output impedance and the subsequent stage (i.e., 7) has a high input impedance (as Appellant contends is true in this case), such a combination would necessarily have virtually no affect on the “forward gain”. Another well-known way of stabilizing forward gain is to provide negative feedback for the entire circuit, not just in one stage. It is clear from the reference that the notch filter does not affect the forward gain between the input ( $V_{in}$ ) and the output ( $V_{out}$ ), not necessarily the forward gain of the notch filter stage itself. Clearly, forward gain of an individual stage is not important if the forward gain of the overall circuit is controlled. As seen, the circuit of Cavigelli expressly shows that the circuit has a global feedback line 37. Since this is a negative feedback, the forward gain of the circuit cannot be affected by notch filter 202.

Further, Examiner contends that Appellant is misinterpreting the phrase “Notch filter 202 does not affect the forward gain and the phase of the apparatus except in the notch region”. Upon a plain reading of this sentence, it is clear that this is not establishing a requirement for

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notch filter 202. This is merely a direct statement of resulting operation that “notch filter 202 does not affect the forward gain and the phase of the apparatus except in the notch region”. In other words, the addition of notch filter 202 will have no affect on the forward gain and the phase of the apparatus. The only requirement seen for the notch filter is the statement in the following line (Col. 8, line 64 - Col. 9, line 1) stating “the notch frequency is selected to be substantially above the operation frequencies of the amplifier, wherein the loop gain of the system is relatively low, and in a frequency region, wherein it is desirable to reduce a high frequency noise caused by some other source (emphasis added)”. Clearly, the “notch frequency” is set by the values of R and C in Applicant’s prior art Fig. 1. As is notoriously well known in the art, the “output impedance” (discussed by Appellant), per se, has no affect on the “notch frequency”.

Also, if this language were to be interpreted to require buffering for this stage, Examiner contends that such an interpretation would be an anticipation for buffering (i.e., adding a buffer to) that stage.

In the last line, Appellant remarks “those skilled in the art would recognize that the notch filter should be and active stage that is capable of producing an output voltage to drive the output ( $V_{out}$ ) and the global feedback loop similar to each of the cascaded amplifiers taught by Cavigelli.” In addition to the phrase concerning the “cascaded amplifier”, discussed above, being conjecture, since the statements herein are unsupported, they also would be viewed as conjecture. Additionally, since stage 19 is an “active stage”, Examiner contends that stage 19 in combination with 202 would be “capable of producing an output voltage to drive the output”.



In the first full paragraph of page 11, Appellant makes the unsupported accusation that the amplifiers are necessarily buffered. Examiner contends that not all amplifiers are “buffered”. Appellant then makes that assertion that since the notch filter of prior art Fig. 1 is passive, the “low phase error taught by Cavigelli would not be achievable. However, this assertion is not at all understood. Appellant appears to be making the accusation that each stage 7, 13 and 19 will have low phase error due to such having “low output impedance” and such being active. However, nowhere is the reference to Cavigelli seen to disclose that the “low phase error” is controlled due to the active or low impedance nature of the stages. In fact, Examiner contends that each stage 7, 13 and 19, of themselves, would cause phase error. Each of these stages have passive element necessarily causing phase error. This is particularly true of stage 27. Additionally, active circuitry itself is often used to introduce phase delay. Examiner contends that the only apparent way seen that the circuit of Cavigelli will control phase error is again due to the negative feedback arrangement of the circuit and not due to active or low output impedance properties.

In the second full paragraph of page 11, Appellant reiterates the arguments concerning the affect of stage 202 on the “forward gain” and “phase error” of the circuit. Examiner contends these remarks are in error for the reasons stated above. Examiner contends that the incorrectness of Appellant’s assertions is evidenced by stage 27 and elements 6 and 12. If everything Appellant has stated concerning the properties Applicant’s prior art Fig. 1 are true, then stage 27 and elements 6 and 12 would create the exact same problems discussed by Appellant and Cavigelli’s desired operations with respect to “forward gain” and “phase error” would not be achievable.

In the remaining arguments of pages 11-12, Appellant questions the suggestion or motivation for the combination. However, the rejection directly establishes suggestion or motivation and the reference to Cavigelli does not teach away from the combination for the reasons stated above.

## **Group II**

In the paragraph linking pages 12-13, Appellant argues concerning the rejection to claims 16 and 17. However, these remarks are not understood. Fig. 12A of Cavigelli expressly discloses a “first resistor”<sup>38</sup> and “a second resistor” being the connecting line between 19 and 202. It is clear that element 202 is between that “first resistor” and the “second resistor” and that the “second resistor” has a value of “zero”.

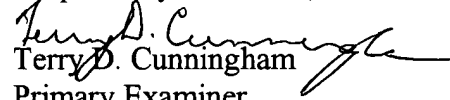
## **Group III**

In the remaining remarks, Appellant argues concerning the applied combination being a “state-variable filter”. However, as seen in Col. 1, lines 14-20, US Patent No. 3,987,370, a “state-variable filter” is well-known as being a variable filter that uses “active integrators and summers connected in a closed loop”. The low-pass filters would be considered “integrators”, element 27 would be a “summer” and line 37 clearly provides a closed-loop. Additionally, as seen in paragraph 6 of USPAP 2003/0141925, a “state-variable filter” is defined to be a filter circuit that “provides low pass, high pass, and band pass outputs simultaneously”. As seen from the different embodiments in Cavigelli, the disclosed circuit meets the requirements.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted, ✓

  
Terry D. Cunningham  
Primary Examiner  
Art Unit 2816

TDC

July 12, 2004

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